What is claimed is:

1. A method for communicating at least first and second digital data streams on a communications link from a source to a destination comprising:

time division multiplexing said first and second data streams wherein said first data stream is a synchronous data stream and said second data stream is an asynchronous data stream, to define a multiplexed stream; and

transmitting said multiplexed stream over said communications link.

2. A method as claimed in claim 1 further comprising detecting that said second data stream is an asynchronous stream.

3. A method as claimed in claim 1 further comprising determining the data rate of at least one of said first and second data streams.

4. A method as claimed in claim 3 wherein said step of determining comprises measuring a duration of at least one bit of said first and second data streams.

5. A method as claimed in claim 3 wherein said step of determining includes over-sampling of said one of said first and second data streams.

6. A method as claimed in claim 3 wherein said step of determining includes

sampling of said one of said first and second data streams at a rate at least about twice the highest anticipated data rate of said one of said first and second data streams.

7. Apparatus for communicating at least first and second digital data streams on a communications link from a source to a destination comprising:

means for a time division multiplexing said first and second data streams wherein said first data stream is a synchronous data stream and said second data stream is an asynchronous data stream, to define a multiplexed stream; and

means for transmitting said multiplexed stream over said communications link.

8. Apparatus as claimed in claim 7 further comprising means for detecting that said second data stream is an asynchronous stream.

9. Apparatus as claimed in claim 7 further comprising means for determining the data rate of at least one of said first and second data streams.

10. A method for communicating at least first and second digital data streams over a communications link from a source to a destination comprising:

receiving said first data stream, said first data stream being a synchronous data stream having a first average data bit rate;

clocking said first data stream into a first data rate buffer;

receiving said second data stream, said second data stream being an asynchronous data stream having a second average data bit rate;

clocking said second data stream into a second data rate buffer;

transmitting, over said communication link, an output bit stream, at an output data bit rate, wherein said output bit stream includes bits output from said first data rate buffer and said bit stream also includes bits from said second data rate buffer.

11. A method as claimed in claim 10 wherein at least one of said first and second data rate buffers is a first-in-first-out (FIFO) buffer.

12. A method as claimed in claim 10 wherein said output bit stream includes time division multiplexing of at least said first data stream and second data stream.

13. A method as claimed in claim 10 wherein said data rate buffers define a next out data bit for outputting in response to a clock-out signal.

14. A method as claimed in claim 10 wherein each $J^{th}$ bit of a first sequential plurality of bits in said data stream, are bits sequentially output from said first FIFO, to define first bits of said output stream, and wherein at least one bit of said first sequential plurality of bits, other than said first FIFO bits, is output from said second FIFO said first sequential plurality of time periods including at least first and second subpluralities of time periods.

15. A method as claimed in Claim 13 wherein said output stream includes at least a first sequential plurality of time period for transmitting a data bit during each said time period, and wherein said step of transmitting comprises:

a. Outputting the next-out bit from said first FIFO and transmitting said communications link during one of said first subplurality of said time period;

b. Following step a, transmitting a bit, during one of said second subplurality of said time period;

repeating steps a and b to define a plurality of iterations of step a and step b wherein at least some of the bits transmitted during iterations of step b are output from said second FIFO.

16. A method as claimed in Claim 11 wherein all bits transmitted during iterations of step b are output from said second FIFO.

17. A method as claimed in Claim 11 wherein said first subplurality comprises every other time period of said first sequential plurality of time periods.

18. A method for communicating at least first and second digital data streams over a communications link from a source to a destination comprising:

receiving synchronous data in a first FIFO at a synchronous data rate;

receiving asynchronous data in a second FIFO at an asynchronous data rate;

clocking data out from said first FIFO onto said communications link at a first output data rate;

clocking data out from said second FIFO onto said communications link at a second output data rate wherein said second data rate equals, on average, said asynchronous data rate.

19. A method for time division multiplexing first and second signals onto a TDM signal having a plurality of time periods, including even-numbered periods and odd-numbered periods, the method comprising:

determining a ratio between the data rate of said first signal and the data rate of said second signal;

using even-numbered periods of said TDM signal for communicating data bits from said first signal and using odd numbered periods of said TDM signal for communicating data from said second signal wherein a next sequential bit of said second signal is transmitted by said TDM signal for every K sequential bits of said first signal transmitted by a said TDM signal;

wherein the value of K alternates between the integral portion of said ratio and one greater than the integral portion of said ratio until an accumulated skew between an effective data rate of the even numbered periods of the TDM signal and the odd numbered periods of the TDM signal exceeds about one half a period of said first input signal whereupon output of the next sequential bit of the second input signal, for communication via the TDM signal, is delayed by two TDM periods.

20. Apparatus for communicating at least first and second digital data streams over a communications link from a source to a destination, said first data stream being a synchronous data stream having a first average data bit rate, said second data stream being an asynchronous data stream having a second average data bit rate, comprising:

means for clocking said first data stream into a first data rate buffer;

means for clocking said second data stream into a second data rate buffer;

means for transmitting, over said communication link, an output bit stream, at an output data bit rate, wherein said output bit stream includes bits output from said first data rate buffer and said bit stream also includes bits from said second data rate buffer.

21. Apparatus as claimed in claim 20 wherein at least one of said first and second data rate buffers is a first-in-first-out (FIFO) buffer.

22. Apparatus as claimed in claim 20 wherein said output bit stream is provided by time division multiplexing of at least said first data stream and second data stream.

23. Apparatus as claimed in claim 20 comprising means for controlling output of data, wherein each $J^{th}$ bit of a first sequential plurality of bits in said data stream are bits sequentially output from said first FIFO, to define first bits of said output stream, and wherein at least one bit of said first sequential plurality of bits, other than said first bits, is output from said second FIFO, said first sequential plurality of time periods including at least first and second subpluralities of

time periods.

24. Apparatus as claimed in claim 20 wherein said data rate buffers define a next out data bit for outputting in response to a clock-out signal.

25. Apparatus as claimed in Claim 24 wherein said output stream includes at least a first sequential plurality of time period for transmitting a data bit during each said time period, and wherein said means for transmitting comprises:

a. means for outputting the next-out bit from said first FIFO and transmitting said communications link during one of said first subplurality of said time period;

b. means for transmitting a bit, during one of said second subplurality of said time periods;

means for repeating operation of said means for outputting and said means for transmitting a bit, wherein at least some of the bits transmitted during one of said second subplurality of time periods are output from said second FIFO.

26. Apparatus as claimed in Claim 21 wherein all bits transmitted during any of said second subplurality of time periods are output from said second FIFO.

27. Apparatus as claimed in Claim 21 wherein said first subplurality comprises every other time period of said first sequential plurality of time periods.

28. Apparatus for communicating at least first and second digital data streams over a communications link from a source to a destination comprising:

means for receiving synchronous data in a first FIFO at a synchronous data rate;

means for receiving asynchronous data in a second FIFO at an asynchronous data rate;

means for clocking data out from said first FIFO onto said communications link at a first output data rate;

means for clocking data out from said second FIFO onto said communications link at a second output data rate wherein said second data rate equals, on average, said asynchronous data rate.

29. Apparatus for time division multiplexing first and second signals onto a TDM signal having a plurality of time periods, including even-numbered periods and odd-numbered periods, the apparatus comprising:

means for determining a ratio between the data rate of said first signal and the data rate of said second signal;

means for communicating data bits from said first signal using even-numbered periods of said TDM signal and for communicating data from said second signal using odd numbered periods of said TDM signal wherein a next sequential bit of said second signal is transmitted by said TDM signal for every K sequential bits of said first signal transmitted by a said TDM signal;

means for selecting the value of K, alternating between the integral portion of said ratio and one greater than the integral portion of said ratio until an accumulated skew between an

effective data rate of the even numbered periods of the TDM signal and the odd numbered periods of the TDM signal exceeds about one half a period of said first input signal whereupon output of the next sequential bit of the second input signal, for communication via the TDM signal, is delayed by two TDM periods.

add A3

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